

Application No. 09/729,118

RD-27953

## REMARKS

Claims 1 to 7, 10, 16 and 37 to 40 are pending. Support for the new claims is found at page 4 of the specification, lines 5 to 14.

A July 31, 2002 first office action in this case, rejected claims 1 to 8, 12 to 14 and 16 under 35 U.S.C. §102(b) over Valus et al. and claims 1 to 14 under 35 U.S.C. §102(b) over Hirahara et al. The Office Action did not reject claim 15 claiming "two permeable walls comprising permeable polycarbonate film." In order to obtain a quick allowance, Applicant amended his claims to the "two permeable walls comprising permeable polycarbonate film." However in its March 28, 2003 and July 15, 2003 Office Actions, the PTO applies a new rejection of claims 1 to 7, 10 and 16 under 35 U.S.C. §103(a) over Eigen et al., Bottenbuch et al. and Bayer.

Applicant's position is that a "permeable polycarbonate film covering at least one cell to selectively permit transport of a reactant gas comprising oxygen and carbon monoxide into the at least one cell while preventing transport of a diaryl carbonate reaction product..." is new and unobvious. Since a "quick allowance" is not forthcoming, Applicant herein amends claim 1 by removing the "two permeable walls" limitation to rely on the "permeable polycarbonate film covering at least one cell to selectively permit transport of a reactant gas comprising oxygen and carbon monoxide into the at least one cell while preventing transport of a diaryl carbonate reaction product..." limitation as distinguishing claim 1 from the prior art. Claim 37 has been added to continue the claim to the "two permeable walls" invention. Additionally, claim 1 is amended to a "sealed" covering and new claim 38 to a heat sealed polycarbonate film has been added based on the specification page 8, lines 7 to 12.

Applicant's specification points out that:

The methodology of COS [combinatorial organic synthesis] is difficult to apply in certain reaction systems. For example up to now, COS has not been applied to systems that may produce vaporous products that may escape from respective cells of an array and contaminate the contents of adjacent or near-by cells. There is a need for improved reaction plate and

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method to permit rapid and effective investigation of vaporous product reaction systems.

Specification page 2.

The invention provides a plate for combinatorial investigation of "the catalytic production of aromatic carbonates," a vaporous product COS system. The new plate has a permeable polycarbonate film cell covering that selectively permits transport of oxygen and carbon monoxide into the cell but prevents transport of the vaporous product - the diaryl carbonate - out of the cell. In embodiments, the film cell seal is characterized by a diffusion coefficient of  $5 \times 10^{-10}$  to  $5 \times 10^{-7}$  cc(STP)-mm/cm<sup>2</sup>-sec-cmHg" (claim 2), " $1 \times 10^{-9}$  to  $1 \times 10^{-7}$  cc(STP)-mm/cm<sup>2</sup>-sec-cmHg" (claim 3) and " $2 \times 10^{-8}$  to  $2 \times 10^{-6}$  cc(STP)-mm/cm<sup>2</sup>-sec-cmHg." (claim 4).

#### I. PRIOR ART REJECTION

Claims 1-7, 10 and 16 were rejected under 35 U.S.C. 103(a) over Eigen et al., Bottenbruch et al and Bayer.

##### A. IMPROPER COMBINATION OF REFERENCES

The Eigen et al., Bottenbruch et al and Bayer references are not properly combinable.

The Eigen et al. reference relates to a method of producing a plate by applying a plastic deformable plastic film to cover a molding die with negative well shapes and impinging the film with a hot gas to deform it into the well shapes of the die. As the process proceeds, the well shapes and covering film momentarily comprise cells with film covering-configurations. (See FIGs. 2 and 3 and the Abstract.)

Bottenbruch et al. teaches:

Thin, non-porous polymer films are acquiring increasing importance as membranes in permeation installations for the selective separation of certain gases or liquids from gas mixtures or liquid mixtures; in reverse osmosis for desalination of brackish water and seawater; in coatings, for example of metallic workpieces; as electrically insulating films in electrical installations and as dielectrics in condenser construction.

Polycarbonate films possess particular importance in these fields because

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of their unusual properties. For example, because of their very good electrical insulating capacity and high heat distortion point they are used for insulating purposes in electrical plant construction (electric motors, transformers and others) and because of their very good dielectric properties they are used as dielectrics in condenser construction. Because of their high selective permeability they are also proposed for the separation of helium from natural gas and because of their high permeability for oxygen as against nitrogen they are proposed for the enrichment of oxygen in atmospheric air.

Bottenbruch et al. column 1, lines 9 to 29.

Bayer "Mackrofol BL" Application Technology Information ("Bayer") is only a product specification for a polycarbonate film.

The PTO has not provided the "reason to combine" showing required by *In re Lee*, 277 F.3d 1338, 1343, 61 USPQ 2d 1430, 1433-1434 (Fed. Cir. 2002) to support a combination of references rejection. A reference that teaches only "membranes in permeation installations for the selective separation of certain gases or liquids from gas mixtures or liquid mixtures" (Bottenbruch et al.) and a reference that only lists properties of a polycarbonate film are not "reasonably pertinent" to equipment for "combinatorial investigation of the catalytic production of aromatic carbonates." The references are not properly combinable with the Eigen et al. reference as analogous art. See *In re Clay*, 23 USPQ2d 1058, 1060 (Fed. Cir. 1992).

To support a rejection based on a combination of references, "[t]he PTO "must not only assure that... requisite findings are made, based on evidence of record, but must also *explain the reasoning by which the findings are deemed to support the agency's conclusion*" (emphasis added). *In re Lee*, *supra* 61 USPQ 2d at 1434, 277 F.3d at 1343 (Fed. Cir. 2002).

To establish a prima facie case of obviousness based on a combination of references, the PTO must provide an:

...objective teaching... [that] would lead [one skilled in the art] to combine the relevant teachings of the references." *In re Fritch*, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992)

... "When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding

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of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness. See, e.g., McGinley v. Franklin Sports, Inc., 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001) ("the central question is whether there is reason to combine [the] references," a question of fact drawing on the Graham factors)."

....

... The Board [PTO] must identify specifically the principle, known to one of ordinary skill that suggests the claimed combination. In other words, the Board must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious."); *In re Fritch*, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (the examiner can satisfy the burden of showing obviousness of the combination "only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references").

*In re Lee*, *supra* 277 F.3d at 1343, 61 USPQ 2d at 1433-1434.

In response to this important requirement, the July 15, 2003 Office Action states:

Furthermore one of ordinary skill in the art *would have been motivated* to use the apparatus as taught by Eigen et al. with the thinner polycarbonate films as taught by Bottenbruch et al. and Bayer et al [*i.e. to combine the references*] because of cost savings and convenience (i.e., commercial availability) and also because of the favorable properties of the thinner films" (emphasis in original).

Office Action pages 8 to 9.

This argument is incorrect for a number of reasons.

First, economics (cost savings) and convenience ("commercial availability") are not the technical "reasons to combine" teachings required by *In re Lee*. The claimed invention is not in the field of economics or in the field of inventory ordering but is in the technology field of the "combinatorial investigation of the catalytic production of aromatic carbonates." "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir.

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1992). The person skilled in "combinatorial investigation" would not have been led to a new plate configuration for the investigation by the economics or inventory teachings of Bottenbruch et al. or Bayer. Economic and inventory teachings are not analogous art to "combinatorial investigation of the catalytic production of aromatic carbonates."

Second, Eigen et al. relates to a process of making a plastic multi-well plate. The PTO has not identified a corresponding economics (cost savings) or convenience ("commercial availability") need in Eigen et al. for the person skilled in the art to look to the economics (cost savings) or convenience ("commercial availability") teachings of Bottenbruch et al. or Bayer.

The PTO must provide "logical and rational" reasoning to support its determination (to reject on combined references). *In re Lee*, *supra* 277 F.3d at 1342, 61 USPQ 2d at 1432-1433. In a scientific field, the "logical and rational" combining reasoning would be based on a scientific suggestion in a corresponding scientific field. The PTO has not provided an *In re Lee* reason to combine the economics (cost savings) or convenience ("commercial availability") teachings of Bottenbruch et al. or Bayer.

The rejection is based on a selective picking and choosing of features in secondary references, without any basis in the references for doing so. The rejection is supportable only through hindsight. See *In re Deuel*, 34 USPQ2d 1210, 1215 (Fed. Cir. 1995). Unless the PTO can meet the required *In re Lee* "logical and rational" reasoning to combine, the rejection should be withdrawn.

#### B. NO PRIMA FACIE CASE OF OBVIOUSNESS

Further even improperly combined, the references do not establish a *prima facie* case of obviousness. "A *prima facie* case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art...." *In re Rijckaert*, 28 USPQ2d 1955, 1956 (Fed. Cir. 1992).

Even improperly combined, the references do not teach or suggest: (1) a

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"permeable polycarbonate film sealed to cover at least one cell" (claims 1 to 7, 10, 16 and 37 to 38); (2) a film that "selectively permit(s) transport of a reactant gas comprising oxygen and carbon monoxide into the at least one cell while preventing transport of a diaryl carbonate reaction product out of the at least one cell" (claims 1 to 7, 10, 16 and 37 to 38); (3) a diffusion coefficient of " $5 \times 10^{-10}$  to  $5 \times 10^{-7}$  cc(STP)-mm/cm<sup>2</sup>-sec-cmHg" (claim 2), (4) a diffusion coefficient of " $1 \times 10^{-9}$  to  $1 \times 10^{-7}$  cc(STP)-mm/cm<sup>2</sup>-sec-cmHg" (claim 3); (5) coefficient of " $2 \times 10^{-8}$  to  $2 \times 10^{-6}$  cc(STP)-mm/cm<sup>2</sup>-sec-cmHg" (claim 4); (6) two opposing walls comprising sealed permeable polycarbonate film" (claim 37); or (7) a heat sealed film (claim 38).

The Office Action page 5 argues that (2) a film that "selectively permit(s) transport of a reactant gas comprising oxygen and carbon monoxide into the at least one cell while preventing transport of a diaryl carbonate reaction product out of the at least one cell" (claims 1 to 7, 10, 16 and 37 to 38) is a functional limitation. However, whether a limitation is functional is not a relevant inquiry with respect to a 35 U.S.C. §103(a) rejection. The relevant inquiry is whether the prior art teaches or suggests the limitation. See 35 U.S.C. §103(a). The references do not teach or suggest (2) a film that "selectively permit(s) transport of a reactant gas comprising oxygen and carbon monoxide into the at least one cell while preventing transport of a diaryl carbonate reaction product out of the at least one cell." The 35 U.S.C. §103(a) rejection of claims 1 to 7, 10, 16 and 37 to 38 should be withdrawn.

The Office Action pages 5 to 7 also argues that "... Bottenbruch et al and Bayer teach the same polycarbonate film with the same thickness as that claimed by applicant" and concludes therefore that the selective transport limitation (2) and the diffusion limitations (3) to (5) are met. The premise of this argument is incorrect. Nowhere do Bottenbruch et al. and Bayer teach the "same polycarbonate" (as Applicant claims) "[W]hen the PTO asserts that there is an explicit or implicit teaching or suggestion in the prior art, it must indicate where such a teaching or suggestion appears in the reference...." *In re Rijckaert*, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993). The PTO is expressly requested to point out in Bottenbruch et al and Bayer the teaching of "the same [claimed] polycarbonate film."

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Finally, the Office Action states that Eigen et al. discloses "two opposing walls." However, the Office Action states nothing about "two opposing walls comprising permeable polycarbonate film" (claim 37, emphasis added). While not clear, the PTO may be relying on a teaching of momentary opposing walls as a film is subjected to hot gas flow in the Eigen et al. deforming process. However at that instant, the momentary opposing walls are not permeable (against a positive deforming flow) and are not sealed. Eigen et al. does not teach or suggest "two opposing walls comprising permeable polycarbonate film" (claim 37).

"If examination... does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent." *In re Oetiker*, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). "When the reference cited by the examiner fail to establish a *prima facie* case of obviousness, the rejection is improper and will be overturned." *In re Deuel*, 34 USPQ2d 1210, 1214 (Fed. Cir. 1995).

Eigen et al., Bottenbruch et al and Bayer do establish a *prima facie* case of obviousness of (1) a "permeable polycarbonate film sealed to cover at least one cell" (claims 1 to 7, 10, 16 and 37 to 38); (2) a film that "selectively permit(s) transport of a reactant gas comprising oxygen and carbon monoxide into the at least one cell while preventing transport of a diaryl carbonate reaction product out of the at least one cell" (claims 1 to 7, 10, 16 and 37 to 38); (3) a diffusion coefficient of " $5 \times 10^{-10}$  to  $5 \times 10^{-7}$  cc(STP)-mm/cm<sup>2</sup>-sec-cmHg" (claim 2), (4) a diffusion coefficient of " $1 \times 10^{-9}$  to  $1 \times 10^{-7}$  cc(STP)-mm/cm<sup>2</sup>-sec-cmHg" (claim 3); (5) coefficient of " $2 \times 10^{-8}$  to  $2 \times 10^{-6}$  cc(STP)-mm/cm<sup>2</sup>-sec-cmHg." (claim 4); (6) two opposing walls comprising sealed permeable polycarbonate film" (claim 37); or (7) a heat sealed film (claim 38).

The rejection of claims 1-7, 10 and 16 under 35 U.S.C. 103(a) over Eigen et al., Bottenbruch et al and Bayer should be withdrawn.

Further, the cited references do not teach or suggest the new claims 37 to 40.

## II. 35 U.S.C. 112, FIRST PARAGRAPH REJECTION

Claims 1-7, 10 and 16 were rejected under 35 U.S.C. 112, first paragraph,

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purportedly as containing new matter.

Claim 1 has been amended to recite—plate for the catalytic production of aromatic carbonates-. Support for the amendment is found in the Specification page 2, line 18 to page 4, line 14. The added modifying prepositional phrase should overcome the “plate” basis of rejection.

The “a substrate comprising an array of reaction cells” basis of rejection is traversed. The phrase “a substrate comprising an array of reaction cells” is fully supported in the original specification FIG. 1 and accompanying description at page 4, lines 6 to 14.

The rejection of claims 1-7, 10 and 16 under 35 U.S.C. 112, first paragraph, should be withdrawn.

### III. CONCLUSION

In view of all the foregoing amendments and remarks, it is respectfully submitted that claims 1 to 7, 10, 16 and 37 to 40 are allowable. Reconsideration and allowance are requested.

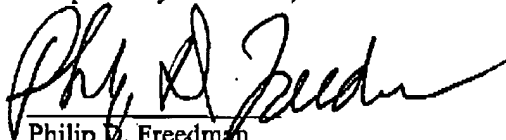


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Should the Examiner believe that any further action is necessary in order to place this application in condition for allowance, he is requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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